WHAT IS CLAIMED IS:

1. A method comprising:

a) accepting forwarding liveness status information;

b) composing a message including the forwarding liveness status information; and

c) sending the message towards a neighbor node.

2. The method of claim 1 further comprising:

d) maintaining a first timer for tracking a send time interval, wherein the acts of composing a message and sending the message are performed after expiration of the first timer; and

e) restarting the first timer after the message is sent.

3. The method of claim 2 wherein the message further includes a dead time interval, and wherein the send time interval is less than the dead time interval.

4. The method of claim 2 wherein the message further includes a dead time interval, and wherein the send time interval is no more than one third of the dead time interval.

5. The method of claim 2 wherein the send time interval is less than one second.

6. The method of claim 2 wherein the send time interval is less than 100 msec.

7. The method of claim 1 wherein the message further includes a dead time interval.

8. The method of claim 1 wherein the act of sending the message includes providing the message in an Internet protocol packet.

9. The method of claim 8 wherein the message is sent towards the neighbor node by setting a destination address in the Internet protocol packet to a multicast address associated with routers that support interface forwarding liveness.

10. The method of claim 1 wherein the status information includes a forwarding liveness state selected from a group of forwarding liveness states consisting of (A) interface up, (B) interface down, (C) interface monitor not reporting, and (D) forwarding engine restarting.

11. For use with a node, a method comprising:

a) receiving a message including

i) forwarding liveness status information, and

ii) a time interval; and

b) updating neighbor node forwarding liveness status information using the message.

12. The method of claim 11 wherein the act of updating neighbor node liveness status information includes

i) setting a first timer to the time interval and starting the first timer,

ii) if the first timer expires, setting a status of an interface of the neighbor node to down; and

iii) if a further message, sourced from the neighbor node, and including

A) forwarding liveness status information, and

B) a new time interval,

is received then, resetting the first timer to the new time interval and restarting the first timer.

13. The method of claim 12 wherein each of the time interval and the new time interval is less than one second.

14. The method of claim 11 wherein the forwarding liveness status information is interface forwarding liveness status information.

15. The method of claim 11 wherein the status information includes a forwarding liveness state selected from a group of forwarding liveness states consisting of (A) interface up, (B) interface down, (C) interface monitor not reporting, and (D) forwarding engine restarting.

16. The method of claim 11 wherein the forwarding liveness status information includes at least one of (i) the integrity and correct operation of forwarding tables, (ii) the integrity and correct operation of switch fabric, (iii) the integrity and correct operation of a forwarding lookup engine, (iv) the integrity and correct operation of a traffic scheduler, (v) the integrity and correct operation of a traffic classifier, (vi) the integrity and correct operation of buffers in the data plane, (vii) the integrity and correct operation of packet segmentation modules, (viii) the integrity and correct operation of packet reassembly modules, (ix) the integrity and correct operation of packet re-sequencing modules, (x) whether or not a node is restarting, (xi) whether or not the forwarding plane is congested, and (xii) the integrity and correct operation of fragmentation modules.

17. The method of claim 11 wherein the forwarding liveness status information includes at least one of (i) bit error rate at a link interface, and (ii) clock synchronization at a link interface.

18. A method for monitoring interface forwarding liveness, the method comprising:

a) determining, at a first node, forwarding liveness status information for an interface;

b) sending, from the first node, a message including the determined status information;

c) receiving, at the second node, the message; and

d) updating, by the second node, first node forwarding liveness status information using the message.

19. The method of claim 18 wherein the message further includes a dead interval, and wherein the act of updating first node forwarding liveness status information includes

i) setting a timer to the dead interval;

ii) starting the timer;

iii) determining whether or not a further message including forwarding liveness status information is received from the first node before the expiration of the timer; and

iv) if it is determined that a further message including forwarding liveness status information is not received from the first node by the second node before the expiration of the timer, then informing the second node that the interface of the first node is down.

20. The method of claim 18 wherein the status information includes a forwarding liveness state selected from a group of forwarding liveness states consisting of (A) interface up, (B) interface down, (C) interface monitor not reporting, and (D) forwarding engine restarting.

21. The method of claim 18 wherein the forwarding liveness status information includes at least one of (i) the integrity and correct operation of forwarding tables, (ii) the integrity and correct operation of switch fabric, (iii) the integrity and correct operation of a forwarding lookup engine, (iv) the integrity and correct operation of a traffic scheduler, (v) the integrity and correct operation of a traffic classifier, (vi) the integrity and correct operation of buffers in the data plane, (vii) the integrity and correct operation of packet segmentation modules, (viii) the integrity and correct operation of packet reassembly modules, (ix) the integrity and correct operation of packet re-sequencing modules, (x) whether or not a node is

restarting, (xi) whether or not the forwarding plane is congested, and (xii) the integrity and correct operation of fragmentation modules.

22. The method of claim 18 wherein the forwarding liveness status information includes at least one of (i) bit error rate at a link interface, and (ii) clock synchronization at a link interface.

23. A machine-readable medium having stored thereon a machine readable data structure comprising:

a) an indication, for an interface of a node, of a forwarding liveness state of the interface; and

b) a dead interval.

24. The machine-readable medium of claim 23 wherein the indication indicates a forwarding liveness state selected from a group of forwarding liveness states consisting of (A) interface up, (B) interface down, (C) interface monitor not reporting, and (D) forwarding engine restarting.

25. The machine-readable medium of claim 23 wherein the indication indicates a forwarding liveness of an interface and includes at least one of (i) the integrity and correct operation of forwarding tables, (ii) the integrity and correct operation of switch fabric, (iii) the integrity and correct operation of a forwarding lookup engine, (iv) the integrity and correct operation of a traffic scheduler, (v) the integrity and correct operation of a traffic classifier, (vi) the integrity and correct operation of buffers in the data plane, (vii) the integrity and correct operation of packet segmentation modules, (viii) the integrity and correct operation of packet reassembly modules, (ix) the integrity and correct operation of packet re-sequencing modules, (x) whether or not a node is restarting, (xi) whether or not the forwarding plane is congested, and (xii) the integrity and correct operation of fragmentation modules.

26. The machine-readable medium of claim 23 further comprising:

c) an identifier of the node.

27. The machine-readable medium of claim 26 wherein the node is a router and wherein the identifier is a router identifier.

28. The machine-readable medium of claim 23 further comprising:

c) an interface index.

29. For use with a node, elements comprising:

a) means for accepting forwarding liveness status information;

b) means for composing a message including the forwarding liveness status information; and

c) means for sending the message towards a neighbor node.

30. The elements of claim 29 further comprising:

d) means for maintaining a first timer for tracking a send time interval, wherein the means for composing a message and sending the message compose and send the message after expiration of the first timer; and

e) means for restarting the first timer after the message is sent.

31. The elements of claim 30 wherein the message further includes a dead time interval, and wherein the send time interval is less than the dead time interval.

32. The elements of claim 30 wherein the message further includes a dead time interval, and wherein the send time interval is no more than one third of the dead time interval.

33. The elements of claim 30 wherein the send time interval is less than one second.

34. The elements of claim 30 wherein the send time interval is less than 100 msec.

35. The elements of claim 29 wherein the message further includes a dead time interval.

36. The elements of claim 29 wherein the means for sending the message include means for providing the message in an Internet protocol packet.

37. The elements of claim 36 wherein the means for sending the message include means for setting a destination address in the Internet protocol packet to a multicast address associated with routers that support interface forwarding liveness.

38. The elements of claim 29 wherein the status information includes a forwarding liveness state selected from a group of forwarding liveness states consisting of (A) interface up, (B) interface down, (C) interface monitor not reporting, and (D) forwarding engine restarting.

39. For use with a node, elements comprising:

a) means for receiving a message including

i) forwarding liveness status information, and

ii) a time interval; and

b) means for updating neighbor node forwarding liveness status information using the message.

40. The elements of claim 39 wherein the means for updating neighbor node liveness status information include

i) means for setting a first timer to the time interval and starting the first timer,

ii) means for setting a status of an interface of the neighbor node to down if the first timer expires; and

iii) means, if a further message, sourced from the neighbor node, and including

A) forwarding liveness status information, and

B) a new time interval,

is received, for resetting the first timer to the new time interval and restarting the first timer.

41. The elements of claim 39 wherein each of the time interval and the new time interval is less than one second.

42. The elements of claim 39 wherein the forwarding liveness status information is interface forwarding liveness status information.

43. The elements of claim 39 wherein the status information includes a forwarding liveness state selected from a group of forwarding liveness states consisting of (A) interface up, (B) interface down, (C) interface monitor not reporting, and (D) forwarding engine restarting.

44. The elements of claim 39 wherein the forwarding liveness status information includes at least one of (i) the integrity and correct operation of forwarding tables, (ii) the integrity and correct operation of switch fabric, (iii) the integrity and correct operation of a forwarding lookup engine, (iv) the integrity and correct operation of a traffic scheduler, (v) the integrity and correct operation of a traffic classifier, (vi) the integrity and correct operation of buffers in the data plane, (vii) the integrity and correct operation of packet segmentation modules, (viii) the integrity and correct operation of packet reassembly modules, (ix) the integrity and correct operation of packet re-sequencing modules, (x) whether or not a node is restarting, (xi) whether or not the forwarding plane is congested, and (xii) the integrity and correct operation of fragmentation modules.

45. The elements of claim 39 wherein the forwarding liveness status information includes at least one of (i) bit error rate at a link interface, and (ii) clock synchronization at a link interface.

46. A system comprising:

a) a first node including

i) means for determining, at a first node, forwarding liveness status information for an interface, and

ii) means for sending a message including the determined status information; and

b) a second node including

i) means for receiving the message, and

ii) means for updating first node forwarding liveness status information using the message.

47. The system of claim 46 wherein the message further includes a dead interval, and wherein the means for updating first node forwarding liveness status information include

i) means for setting a timer to the dead interval;

ii) means for starting the timer;

iii) means for determining whether or not a further message including forwarding liveness status information is received from the first node before the expiration of the timer; and

iv) means for informing the second node that the interface of the first node is down if it is determined that a further message including forwarding liveness status information is not received from the first node by the second node before the expiration of the timer.

48. The network of claim 46 wherein the status information includes a forwarding liveness state selected from a group of forwarding liveness states consisting of

(A) interface up, (B) interface down, (C) interface monitor not reporting, and (D) forwarding engine restarting.

49. The system of claim 46 wherein the forwarding liveness status information includes at least one of (i) the integrity and correct operation of forwarding tables, (ii) the integrity and correct operation of switch fabric, (iii) the integrity and correct operation of a forwarding lookup engine, (iv) the integrity and correct operation of a traffic scheduler, (v) the integrity and correct operation of a traffic classifier, (vi) the integrity and correct operation of buffers in the data plane, (vii) the integrity and correct operation of packet segmentation modules, (viii) the integrity and correct operation of packet reassembly modules, (ix) the integrity and correct operation of packet re-sequencing modules, (x) whether or not a node is restarting, (xi) whether or not the forwarding plane is congested, and (xii) the integrity and correct operation of fragmentation modules.

50. The system of claim 46 wherein the forwarding liveness status information includes at least one of (i) bit error rate at a link interface, and (ii) clock synchronization at a link interface.